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PHYSICAL VALUATION OF RAILROADS

THE development both of the theory and practice of physical valuation of public service corporations, and especially of railroads, has been very rapid during recent years in the United States. An outline of the state of affairs in 1907 by the author in this QUARTERLY,[1] while sound in the main so far as principles are concerned, is positively palæontological as to concrete data. What then seemed to be settled conclusions, now appear, retrospectively, to have been only dim foreshadowings of the actual thing. What was then mere experimentation has now become fairly scientific procedure. A former mere side-line of activity for the engineers and economists now affords a livelihood to hundreds of trained men. The physical valuation of quasi-public properties has become almost a profession apart. It is the aim of this paper to bring our earlier data for seven years ago down to the present. But in order to avoid repetition, much that is really fundamental must be taken for granted in order to leave room for that which is new.[2]

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[1] Vol. xxii, pp. 577–610.

[2] The best authority is R. H. Whitten, Valuation of Public Service Corporations, 1912 (supplementary volume, 1914). Other references in Congressional Library lists, 1905 and 1909; as also *Proceedings American Society Civil Engineers*, August, 1913; H.V. Hayes, Public Utilities, 1913; O. L. Pond, A Treatise on the Law of Public Utilities etc., 1913; Bruce Wyman, Public Service Corporations, 1911, especially chap. xxxii. For economic, as distinct from engineering or legal analysis, chronologically, consult *Publications American Economic Association*, 1906, pp. 1–145; *idem*, series iii, xi, 1910, pp. 183–288; *Political Science Quarterly*, xxii, 1907, pp. 577–610 (by the author); *Yale Review*, 1908, pp. 366–399; Hearings on Railroad Rate Increases, 1910, 61st Congress, 3rd session, Sen. Doc. no. 725, 10 vols. (index); Report, Val-

Physical inventories of private property of all kinds by governmental authority have long been taken at intervals for purposes of taxation. Occasionally also, in cases of demonstrated necessity, appraisals have been made either for direct purchase by the state under condemnation proceedings, or in order that takings may be had for certain public uses, such as railroad construction, under exercise of the right of eminent domain. Both of these forms of valuation for purchase have occurred under judicial authority and by "due process of law."[1] And now there have been added in recent years two other reasons for formal valuation of all property like railroads, affected with a public interest. The older of these, dating from the early seventies, as we shall see, has to do with the exercise of the power to regulate rates for common carriers. The other is even more recent. It is concerned with the regulation by the state of the issue of securities. Originally an outgrowth of rate supervision, such control of capitalization, as has been noted, is now recognized as fundamental for the assurance of safe and adequate service as well.[2] Whether the economic and legal principles governing valuation for all four of these more or less distinct purposes above enumerated are identical need not concern us at this time. It will suffice to point out that the rise of formal physical valuation has been gradual. There is nothing revolutionary in the idea. It has time-honored antecedents, notwithstanding the fact that the present aims differ so radically from those which actuated the state in first instance, and that such valuation is now entrusted to the administrative more largely than to the judicial arm of the government. The practice of valuation in itself can hardly be said to run counter to conservative sentiment, whatever may be true as to the purpose

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uation Committee, National Association Railway Commissioners, Proceedings, 1911, p. 145 ff.; Discussion, *American Economic Review*, iv, supp. 1913, pp. 18-68; *Atlantic Monthly*, March, 1914, pp. 403-416.

[1] *Cf.* the Minnesota Rate Cases in 1890, seemingly reversing Munn *v.* Illinois, 94 U. S. 113; Public Service Gas Co. *v.* Board of Public Utility Com'rs, 87 Atl. 651; opinion of Justice Swayze at p. 659.

[2] State Regulation of Security Issues, by the author, in *American Economic Review*, iv, 1914, pp. 541-564.

for which the valuation is to be used. Physical valuation by the government, then, is no novel experiment, fraught with vast and unknown possibilities of evil. Nor is the demand for it a sudden and portentous manifestation of socialism, threatening to overturn the institution of private property. After an initial period of panic at the idea, the railroads of the country have in fact come to perceive so many safeguards for their standard of rates, of income and of service, that the federal legislation of 1913, extending the scope of valuation from a few scattered commonwealths to cover the entire United States, encountered practically no opposition at all.

A special physical inventory of property of railroads for purposes of taxation began in Michigan in 1900 when some seven thousand miles of line were evaluated. Wisconsin followed suit in 1903. And then followed in order other states, still interested primarily in taxation questions: South Dakota in 1908, Nebraska and New Jersey in the following year, and Kansas in 1911. In each instance the state legislatures authorized the task neither with a view primarily to rate regulation nor the prevention of stock-watering, but in connection with the taxation of railroad corporations. The pressing demand for an equalization of tax burdens, as between the farmers with visible and tangible possessions alone and corporations with unknown and concealable assets and investments, lay at the root of the matter. It was only after the results were achieved and officially published that the people became aware of their significance in connection with other matters than taxation.

Regulation of the issue of railroad securities, rather than taxation, as an incentive to physical valuation first made its appearance in Texas—a true pioneer in this field. Since 1893 an inventory of practically all the lines within its borders has been made. As has already been pointed out,[1] the railroad commission appears to have pressed rather hard upon developmental or improvement work; but, in the main, the influence of this law upon capitalization seems to have been salutary. Texas, then, is unique in having engaged in this work with reference primarily to railroad capitalization; although, latterly, several other commonwealths are working along the same line. Comparatively few states have attempted physical valuation in connection with rate regulation. Among the few which have, are notably Washington in 1905 and Minnesota two years later. This last instance, especially its later phases, is peculiarly illustrative of the intimate relationship between valuation and the control of rates.[1]

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[1] The experience is reviewed by the author in *American Economic Review*, iv, 1914, p. 556.

The legislature of Minnesota in 1907 enacted both a two-cent fare and a commodity rate law; and, upon appeal to the courts, an exhaustive inquiry was made by a master in chancery as to the reasonableness of the rates thus prescribed. Pending his decision—which by the way was adverse to the state—the railroad commission was ordered to make an official inventory. A number of novel points of detail were raised, especially as to the valuation of the right of way. The railroads contended for a proportionately higher value for real estate than for contiguous property, it being well known that the companies always have to pay more in first instance. And they insisted upon applying this "multiple", which happened to be three, not to the original cost of the land, but to its present worth. This in effect increased the "unearned increment" three times over and made a difference of over forty per cent in the valuation of the real estate. Whether the cost of reproduction, which was sought, should be $42,000 or $57,000 per mile, depended upon the solution of this and other allied questions. In any case the valuation was surprisingly high, in comparison with one hastily made by a special state senate committee two years earlier, giving only $27,000 per mile of line as the present value.[2] These Minnesota figures were markedly higher than those for the neighboring state of Wisconsin. Still higher valuations were allowed by the state of Washington in its first official returns, made in the same year. One of the novel features in this inquiry was the attempt to ascertain from the records the original costs of construction, together with all subsequent outlay for betterments. Determination of the " market value " of the properties was attempted. Careful engineering study was made at the same time of all present costs of construction, in the hope of ascertaining a " unit cost " of reproduction which could be supplemented from year to year.[1]

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[1] Known as the Sundberg Committee Report.

[2] Steenerson *v.* Great Northern Railway Company, 72 N. W. 713 (1897) and Shepard *v.* Northern Pacific Railway Company, 184 Fed. 765 (1911).

Appraisal of the physical assets of a number of individual roads, not by public authority but entirely at their own initiative and expense, has been made in recent years. The purpose is not always clear. Sometimes it has been done in order to establish a new benchmark for property investment on the balance sheet; sometimes, as by the New Haven railroad, in a vain attempt to justify an overloaded capitalization; sometimes in connection with public agitation over rates; and, quite commonly of late, parallel with and as a check upon the work of state and federal railroad commissions. There has been a decided shift on the part of the carriers from an attitude of hostility and apprehension toward valuation to one of approval and support. And a number of strong companies have set about putting themselves in an impregnable position as respects future rate regulation by undertaking this work on their own account. The New Haven, prior to its downfall, made great use in an advertising way both of its own private inventory and of the official returns of the so-called Massachusetts Validation Board of 1910. Among other instances, one notes the Lehigh Valley appraisal of 1903 and that of the Lackawanna in 1911.[2] The state of public opinion toward the anthracite coal roads has undoubtedly influenced these companies in undergoing the expense of such an investigation. Under federal valuation now in process the hearty coöperation of the roads with the government promises to furnish a large body of data independent of the official reports. Students of the subject will find many of the results of these private appraisals in the official reports on valuation of such states as Nebraska, Kansas, Wisconsin and New Jersey.

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[1] The results are set forth on p. 577.

[2] The Canadian Pacific, from Montreal to Detroit, and the Harriman lines have also made physical valuations; but the data are not available.

The culmination of the movement in favor of railroad appraisal was the enactment by Congress in 1913 of a federal valuation law. This was a logical sequence of the preceding legislation on the general subject of rate regulation.[1] The matter had by this time risen above the plane of partisan politics; although the Democratic national convention was the only one specifically to recommend both valuation and the control of railroad security issues. Credit for this legislation, however, undoubtedly belongs to the Progressive party and, particularly, to Senator La Follette of Wisconsin.[2] Democratic and Republican members of Congress without distinction soon joined hands in favoring the movement, which was also urged by the Interstate Commerce Commission. Favorably reported in 1912, the bill became a law in the following year. Recognizing the then chaotic judicial and administrative status of the question, as will shortly be pointed out, Congress wisely refrained from prescribing any particular plan. All alike were comprehended. Both the conflicting decisions of the courts and the divergent practice of state commissions rendered this the only expedient course. The law directed the Interstate Commerce Commission to proceed at once to ascertain the following items: original cost to date; the cost of reproduction, new; replacement cost less depreciation; and, separately, all other elements of value, if any; together with an apportionment of these items as between the different states, and an analysis of the methods by which the several costs were obtained. The amount and value of donations of cash or lands were called for specifically. The provisions of the statute were thus sufficiently broad to comprehend all possible elements of worth. Moreover, the ascertained amount of the investment was subsequently to be kept up to date by periodic revision and correction, covering all extensions and improvements. The law also called for active co-operation of the carriers in the way of affording access to all records; and it defined a procedure for appeal to the courts in case of any controversy either over method or administration. On the whole, the magnitude of this task greatly increased with the elaboration of the plan. The probable cost to the government alone, at first relatively small, is now estimated to be possibly as high as $20,000,000. Organization and active prosecution of the work took place promptly.[1] The country was divided into five districts, comprising approximately 50,000 miles of main line each. Charge of the work was assumed by one of the ablest and most experienced members of the commission, Hon. Charles A. Prouty, who resigned in order to devote his entire time to the matter. It would lead too far astray to describe the details of this work. It is a colossal task. If we bear in mind, not only that every title, record, blueprint, specification and contract since the beginning must be overhauled, but also that roadway and track parties must inventory and measure every structure, cut, and fill, taking cross-section measurements and checking depths by test pits, even calipering the rails for measurement of wear, some notion may be had both of the time and the expense involved. Will it be worth the cost? Assuming that a prime purpose is to ascertain the amount upon which the public should be required to pay returns, suppose that the valuation should alter this basis by only five per cent. At a rough guess of $20,000,000,000 as the total value of the railroad properties, such a change would amount to one billion dollars. An annual six-per-cent return upon this sum would be $60,000,000. The difference, consequently, either to the public or the carriers for a single year, might well equal three to five times the entire first cost of the undertaking. And then, quite aside from any consideration either of cost or specific utility, the political importance of the task as affecting the state of the public mind toward common carriers quite transcends calculation.

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[1] The history is given in Railroads: Rates and Regulation, chap. xiii *et seq.*

[2] His elaborate speech of April 19, 1906 (*Congressional Record*, xl, p. 5993 ff.), marks the beginning of the movement. *Cf.* his Autobiography for details.

In many states, local and private inventories of public utilities other than railroads have been made in recent years, such, for example, as those of the St. Louis street railways[1] and the Chicago Telephone Company in 1912 by public authority; and of the New England Telephone Company and of many gas, electric light and water properties, semi-privately, all over the United States.[2] It would be interesting to develop the economic principles involved in all of these outlying fields, as affording a background for the special treatment of railroad valuation, did space permit; although a different economic status places railroads in a class by themselves.

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[1] Details in *Railway Age Gazette*, lvi, 1914, p. 1530.

I

The positive results of the valuation of railroad properties which have been made are exhibited in the accompanying table[3], figures being reduced to the uniform basis of miles of line or roadway. Examination of this data reveals a surprising range as between the different states. Due allowance must be made, of course, for such physical differences as those of rugged and flat country; for density of population and traffic, affecting costliness of terminals, grade crossings and single or double tracks; for temperament or bias, influencing official judgments; for the purpose in hand, whether of taxation, rate regulation or what not; and particularly for technique in making the appraisal, as will be described shortly. How important this last consideration may be, appears in the two sets of results for Minnesota according as the right of way is valued higher than adjoining land for railroad purposes, or is taken at the average figure for the entire district. Details of this sort, notably the hand-

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[1] By the St. Louis Public Service Commission, now merged in that of the state of Missouri.

[2] Examination of Whitten will show how widespread these activities are. Pond, *op. cit.*, confines attention entirely to local public utilities.

[3] Statistical data are derived from official federal and state reports. The full titles of these to 1912 will be found in the bibliography in Whitten, *op. cit.* Later results included herewith are in part taken from Bulletin, Bureau of Railway Economics, Washington, 1911; New Jersey Tax Commission, Report on Revaluation of Railroads and Canals, 1911; Nebraska Railway Commission Report, 1911–14; Kansas Utilities Commission Report, 1913. Washington is well reviewed in *Journal of Political Economy*, xxi, 1913, pp. 332–344; New Jersey in *Railway Age Gazette*, liii, 1912, p. 243; and Nebraska in *ibid.*, lvi, 1914, p. 275.

RESULTS OF VALUATION PER MILE OF LINE

	NATURE OF VALUATION	CAPITALIZATION, PAR	COMMERCIAL (MARKET) VALUATION	PHYSICAL VALUATION		TOTAL PRESENT VALUATION (DUPLICATION LESS DEPRECIATION PLUS INTANGIBLES)
				REPRODUCTION, NEW	PRESENT VALUE DUPLICATION LESS DEPRECIATION	
United States. . .	Commercial . .	1900, $60,600	1900, $43,200 1904, 52,600			
Texas.	Capitalization . .	1894–6, 40,800 1905–9, 32,000	. . . .	. . . .	1894–6, $16,000 1905–9, 22,200	1908, $31,800[1]
Michigan	Taxation	1900, 37,300 1907, 42,900	. . . .	1900, $26,000	1900, 21,300 1907, 24,500	
Ohio	Taxation	. . . .	1903, 75,000			
Wisconsin.	Taxation and rates.	1909, 44,200	. . . .	1903, 30,900 1909, 41,800	1903, 25,500 1909, 33,900	
Washington	Rates.	1905, 53,300	1905, 64,875	1905, 64,300	1905, 58,300	
Minnesota.	Rates.	1907, 39,500	. . . .	54,200[2] 49,200[3]	47,500[2] 42,500[3]	
South Dakota . .	Taxation	1909, 35,100	. . . .	1909, 26,900	1909, 23,200	
Nebraska	Rates.	. . . .	. . . .	1909, 48,000	1909, 41,000	
New Jersey	Taxation	1909–11, 174,500	. . . .	175,000[4]	. . . .	1909–11, 167,600
Kansas	. . . .	. . . .	. . . .	1911, 37,200	1911, 27,500	

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[1] For taxation.

[2] Land at plus value, 1907.

[3] Land at average value only, 1907.

[4] 1909–11.

ling of depreciation or of going value, profoundly affect the total.[1] It is but natural, therefore, in view of these circumstances that the results, even as between states similarly circumstanced, should differ widely from one another. Take the present structural value for example. Texas finds it to be $22,000 per mile of line in 1905. From this level, not unlike Michigan and South Dakota, one traces an ascending series in the following order, through Wisconsin and Nebraska, up to Washington at $58,300. New Jersey at $167,000 stands apart, not only because differently circumstanced physically, but also because an element of intangible value is included in the returns. But it is less easy to show why Minnesota should value her railroads almost twice as high as do Texas, Michigan or South Dakota. Turning from present physical value to reproduction cost, new, one finds somewhat greater uniformity, the varying treatment of depreciation being eliminated. Yet even here the range is wide; and all sorts of incongruities appear. The figures for capitalization per mile of line afford somewhat greater satisfaction to the seeker for uniformity; but caution is advised, because of the purely arbitrary rules for apportionment as between the states. One seems to detect a normal level of about $40,000—with a range from $35,000 in South Dakota to $53,000 in Washington. New Jersey once more stands in a class by itself. In fine, the first impression of disagreement as to results, derived from inspection of this data, is discreditable to the whole procedure.

Comparison of the different elements in the problem with one another within each state standing by itself, rather than as between states, are slightly more reassuring. However widely the different inventories may range in interstate comparisons, the margins between physical and commercial valuations made by the same authorities check up more or less roughly one with another; that is to say, a certain relativity between the different items along the same line in the table seems roughly to obtain. But even here the differences are either referable to the particular method of valuation employed, or else require interpretation in the light of physical and social conditions. It is evident that such piecemeal valuation, state by state, each according to its own special plan, leads to confusion worse confounded. If the work is to be done with at all satisfactory results, so far as interstate comparisons are concerned, it must evidently be performed by the federal government according to a uniform plan.[1]

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[1] Much depends upon the way in which allocation is made between states, whether according to miles of line, of track, of units of traffic or equipment, or even perhaps, with special distribution of capitalization and values for terminals. New Jersey assigned $10,000,000 for the Pennsylvania, for example, to lines west of Pittsburg. *Cf. Railway Age Gazette*, lvii, 1914, p. 17, and 22 Interstate Commerce Commission Reports 616, for soft coal rates; as also Ripley, Railway Problems (rev. ed.), p. 732.

The most important general conclusion to be drawn from the foregoing data has to do with the relation between physical valuation and capitalization. The returns in this respect are, with substantial unanimity, in favor of the contention of the carriers that their outstanding issues of stocks and bonds at the present day are fairly represented by the worth of their physical properties. For five states taken together,[2] the physical valuation, new, is $142,000,000 in excess of the outstanding securities at par—depreciation, it is assumed, about offsetting their extra value as going concerns.[3] Turning to our table for comparison of security issues with present physical value, state by state, the evidence is conclusive that over-capitalization does not exist, but that, on the contrary, there is a comfortable margin of real value over and above the amount of outstanding stocks and bonds. This is, for example, evinced in Minnesota where the average capitalization is $39,500 per mile, as against a considerably greater present value, even where the right of way is most conservatively appraised. New Jersey returns $174,500 capitalization at par against practically the same figure for reproduction, new. Present worth is found to be $167,600.[1] Washington, Wisconsin and even Texas present a similiar substantial equality between capital liabilities and assets, depreciation being considered as an equivalent for going value, as above stated. For Washington, where market valuation was sought, it was found that the commercial inventory was considerably in excess of present worth. Wisconsin and Michigan, to be sure, return a capitalization at par somewhat greater than present replacement value; but this is far more than counterbalanced by the omission of the intangible worth attaching to a going concern.[2] The case of the New Haven appraisal of 1910[3] is peculiar, not alone in purpose but in method. But the reported excess of

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[1] The so-called New Haven Validation Report of 1910 was perhaps the first one to comprehend an entire railroad system, without regard to state lines.

[2] Minnesota, South Dakota, Wisconsin, Texas and Washington. Another combination, including Michigan and omitting Texas, gives a combined net capitalization of $1,211,000,000 as against reproduction cost, new, of $1,212,000,000, and present value of $1,035,000,000, with no allowance for going value. *Atlantic Monthly*, 1914, p. 412.

[3] P. 597, *infra*.

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[1] The surplus in favor of some individual roads, such as the Pennsylvania and the Lackawanna, and even the Erie, is large. The Reading and the Lehigh Valley evince substantial equality; but these all include large coal properties. *Railway Age Gazette*, liii, 1912, p. 244:—

Per mile of road.

	Present physical value.*	Intangible value. (Going concern.)	Per cent intangible to physical value.	Capitalization.
New Jersey:				
Penn. R. R.	$158,000	$27,600	17	$137,600
Reading	68,400	21,000	31	67,800
Erie	195,600	22,100	11	136,500
Lackawanna	285,900	54,400	19	260,000
Lehigh Valley	310,300	58,700	18	315,200
All roads	$167,600	$34,300	20	$174,500
Nebraska				
Chic. Northwestern. . .	32,450 (land =)†			
South Dakota:				
Chic. Northwestern. . .	23,570 (land 250%)*			
Kansas:				
Union Pacific	27,500			
Washington:				
Northern Pacific	104,000			
Great Northern.	70,500			

* Apparently value new, less depreciation, plus intangible value or going value.

† Symbol for equality.

[2] P. 597, *infra*.

[3] Reprinted in *The Railway Library*, Chicago, 1911.

assets over capitalization, amounting to $101,600,000 is not without significance. On the whole, therefore, it is indisputable that the hoary-headed bogie of an immense over-capitalization of American railroads is laid at rest by the results of these official investigations. Whatever the condition may have been in the last century, there can be no doubt that the growth of the country has in most cases more than expunged the water; and that at the present time a substantial equity over and above the capital liabilities exists. This happy outcome of physical valuation, so far as it has progressed to date, explains the marked change of attitude of the carriers toward the whole proposition for an official inventory by the federal government. It confirms the conclusion, already reached from another point of view,[1] that on the whole the average rate of return upon the existing net capitalization is modest enough. It is certainly not more than fair in amount. That it does not exceed five per cent at the present time seems to be well established. The withdrawal of capitalization from the center of the political stage in favor of physical valuation as a positive scientific standard of judgment, is matter for congratulation on all sides.

II

The settled legal standard of rate reasonableness, sole and controlling in the lower courts and predominant, although still embryonic, in the Supreme Court according to the foregoing review[2] being present value, that is to say, "value at the time it is being used for the public", is it too late to suggest any revision of our ideas upon the subject? Congress, as we have already seen, has wisely directed that the valuation now under way shall include all possible data, present as well as historic. It has thus provided for the contingency of a shift of base by the courts. May we not also contribute to that end by reviewing one by one the several standards from a purely economic standpoint? For unless economics and law are in entire accord, experience proves that real progress may not be anticipated. For the purpose of this economic analysis, four distinct bases of rate reasonableness will be examined. These, owing to the interblending of fair returns and fair worth of property, correspond to four schemes of physical valuation. They are:

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[1] *Railway Age Gazette*, October 28, 1910.

[2] The development of the legal aspect of the matter in our earlier paper of 1907, will be amplified and brought down to date in Railroads: Finance and Organization, now in preparation.

1. Original or actual cost.
2. Reproduction cost, new.
3. Present value—replacement cost, less depreciation.
4. Market value, based upon earning power.

Actual cost of property,[1] that is to say original construction plus additions and betterments, despite its insecure legal footing, seems to be not only the most natural but in many respects the fairest single basis for the determination of reasonableness of rates. It has been neglected in part because of the inchoate condition of accounting principles and practice, and in part because of misunderstanding by laymen of such sound distinctions between capital and income as were well recognized among experts. Great confusion is everywhere apparent as to what the term implies. "Book value," or cost of property, as we have already seen, seldom represents anything even approximating to the facts. The meagerness of corporate records, either because of carelessness or bad faith,[2] is indeed a severely practical objection; and yet experience has already shown that original cost can be unearthed. The most substantial attempt along this line is the inventory made by the Washington Railroad Commission in 1905, where it appeared that the actual investment was obtainable for practically all of the property. How different this is from the accepted legal standard of fair present value appears from this data. The original cost of the Northern Pacific plus improvements was appraised at $75,500,000, as against a cost of reproduction, new, of $103,600,000. Much of this difference was due to the appreciation in land values, particularly of terminal properties. But whether or not the substitution of this standard of actual cost for the one generally sanctioned by the courts will inure to the advantage of the carriers is of course quite immaterial,[1] depending probably, as in this case, upon the basis of valuation applied to real estate. The predilection of the law for present value without distinction as to land, even to the absurd extent of holding original cost to be "totally irrelevant,"[2] flows, as we have already seen, from the long-standing legal practice. The tendency to break away from this tradition and to regard donated lands, or lands whose market value has arisen from the growth of the community, differently, is of comparatively recent date. It cannot be denied that the original-cost theory possesses strong attractions for those who hold that the public as a whole, and not individual members of it, should profit by the unearned increment in land.[3]

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[1] This is practically the "continuous property" or Antigo theory of Wisconsin, 3 Wisconsin R.C.R. 623; the historical method under the principal and agent theory of public regulation of J. H. Gray, *Economic Review,* iv, supp. 1914, pp. 26 and 51, and of E. W. Bemis, Proceedings National Association Railway Commissioners, 1913; of normal actual cost of Whitten, Valuation etc., pp. 82–101, and also *Harvard Law Review,* xxvii, pp. 5–23; and of the St. Louis Public Service Commission and that of New Hampshire; *Quarterly Journal of Economics,* xxviii, 1914, p. 271. It is not the so-called original cost theory of the engineers; Hayes, Public Utilities, 1913, and *Quarterly Journal of Economics,* xxvii, 1913, pp. 616–629; or Allison, *idem,* xxvii, 1912, p. 30; who merely mean original cost of *existing* units of property, not actual outlay considered historically.

[2] *Cf. Railway Age Gazette,* 1909, p. 220; and, for example, Sixth Annual Report Nebraska Railroad Commission, 1913, p. 201; also 31 Interstate Commerce Commission Reports, p. 365.

A number of details have to be carefully analyzed prior to the acceptance of original cost as the foundation for valuation. Heavy outlays experimentally, that is to say, what are called development costs, are apt to be swallowed up in the accounts with the lapse of time.[4] This is particularly true of destruction or abandonment by act of God or man.[5] The recently constructed San Pedro, Los Angeles and Salt Lake was, for example, washed out three times by floods, each time being rebuilt at great expense, in the search for a really safe location. Great difficulty in theory arises also from past expenditures, probably capitalized, as a result of incompetence, recklessness and dishonesty.[1] One must surely reckon with certain risks; but the public can scarcely be expected to pay returns upon a basis comprehensive enough to include much of this sort of expense. It is equally difficult to reckon with a too provident administration of the property. Considerations suggested in the second San Diego land case are equally applicable to railroads which have intrenched themselves against all future demands for service by an investment greatly in excess of the needs of the present time. The American people seem destined to pay carrying charges to the Reading Company on indebtedness incurred in order to monopolize the anthracite coal supplies of the future; but this exceptional case certainly need not be duplicated with other properties concerned solely with transportation. After reckoning with the foregoing factors, none of them more difficult, theoretically, than those attached to the other standards of valuation, there is the great advantage inherent in actual or original cost that it eliminates or minimizes, through compensation, the changes of valuation arising from fluctuations in the level of prices in general.[2] During the generation to 1900, the steady fall in commodity prices worked disadvantageously to the railroads in any appraisal of property. The greater the fall in unit costs, the narrower the basis upon which they might claim a return in rates. Since that time the equally marked enhancement of prices enables them by means of an up-to-date inventory to justify heavier charges for service rendered. In either case, so far as property long ago acquired is concerned, this change in the rate basis has been merely fortuitous, totally disconnected with the matter in hand. It would certainly appear more equitable that the rights and obligations of the companies should rest upon the amount of the investment honestly and fairly, that is to say, "actually created and placed in the public service."[1] Should not this theoretical advantage go far to offset the practical difficulties which are so largely responsible for the neglect of this standard of reasonableness? In conclusion, one warning, however, needs to be set up. A number of elements of value, soon to be discussed, notably costs of development, may find place either in a scheme based upon original investment, or as intangibles under the plan based upon reproduction cost. They should not be twice included; neither should they appear both in the valuation basis and in the rate of return allowed. The choice of original cost as a basis automatically takes care of a number of elements which under the other plan deserve inclusion as "remaining property."[2] Moreover, even the appearance of a guarantee of the investment by the public must be scrupulously avoided. Permitting the capitalization of early deficits or losses by a subsequent replacement policy may all too readily bring about this result. With these qualifications in mind, cordial assent may be given to the able opinion of the Interstate Commerce Commission in the Western Rate Advance case of 1911.[3]

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[1] Sometimes it works the other way, as in Texas, 1894, with original cost $40,000,000 and replacement cost only $25,000,000. This will depend upon the movement of prices for commodities in general also.

[2] 13 *Columbia Law Review*, p. 567.

[3] See p. 585, *infra*, on treatment of land values.

[4] On the different methods of treating development experience, *vide*, p. 598, *infra*.

[5] Functional depreciation etc., *cf.* p. 591, *infra*. See also Statistics of Railways, Interstate Commerce Commission Reports, 1907, and Whitten, Valuation, p. 37.

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[1] "Teazers," for example, in the Texas experience; Ripley, Railway Problems, rev. ed., p. 337.

[2] *Cf.* the Steenerson case, *cit. sup.*

> Perhaps the nearest approximation to a fair standard is that of *bona fide* investment—the sacrifice made by the owners of the property—considering as part of the investment any shortage of return that there may be in the early years of the enterprise. Upon this, taking the life history of the road through a number of years, its promoters are entitled to a reasonable return. This, however, is manifestly limited; for a return should not be given upon wastefulness, mismanagement, or poor judgment, and always there is present the restriction that no more than a reasonable rate shall be charged.

The treatment of land values most sharply differentiates actual from replacement cost as a standard of valuation. Real estate appraisals are peculiarly important for railroads, such property not infrequently aggregating as much as one-fourth of its entire possessions. Among concrete instances of the prominence of real-estate values, that of the Illinois Central well serves to illustrate the rôle of the unearned increment of land in railroad finance. Carried at only $200,000 on the books—such being the original entry—the real estate of the Illinois Central was appraised at $34,000,000 in 1900. Now land, thus forming so large a proportion of assets, is set off from other forms of property by three characteristics. In the first place, with the growth of population it commonly tends to appreciate steadily in value. Most other property declines in value with the passage of time. Secondly, for the United States in particular, much of the railroad land has been donated by the public in aid of construction. But thirdly, it should be noted, such land as has been purchased even under exercise of the right of eminent domain has actually cost in most instances anywhere from one and one-half to ten times as much as ordinary real estate on the average in the same environment. From these circumstances arise a number of puzzling questions. Should the unearned increment be included in physical valuation or not? Ought public land grants to be excluded from such appraisal? Is a distinction between lands now in use and those held for investment or future development called for by sound public policy? Shall real estate, if appraised at present value, take cognizance of the extra cost to the carriers by reason of severance or other damages? Space will not permit of adequate treatment of these significant economic and ethical questions; but certain tendencies may be noted.

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[1] St. Louis Public Service Commission, 1912; report on the United Railways Company.

[2] *Cf.* Whitten, Valuation, pp. 566 and 708. And then, too, an allowance of going value or developmental costs must reckon with the capitalization of these in the hands of later owners as distinct from those who assumed the original risks.

[3] 20 Interstate Commerce Commission Report, 307. *Cf.* also the Minnesota Rate Cases; Ripley, Railway Problems, rev. ed., p. 699.

Two opposing bodies of opinion respecting land values are discernible. One maintains that railways as common carriers in the enjoyment of valuable privileges are not entitled to the unearned increment, not even for land actually purchased, much less when donated outright. Original cost is upheld as the only proper basis for appraisal, in the belief that any departure from such a policy would result in steadily increasing rate burdens, arising largely from the activities and even the very generosity of the public itself. Such is the theory of the radical legislator and of some economists.[1] The opposite view is that, inasmuch as all lands are held under recognized proprietary rights, a return upon their full commercial worth is as justifiable for land as for any other form of possession, the state making no distinction as respects either taxation or rates for service. This latter opinion is commonly buttressed by judicial decisions.[2] It is the time-honored practice of the law. Probably the most detailed consideration of the matter is given in the Minnesota Rate Cases of 1913 by the Supreme Court of the United States. It was there ruled that the present value of land, and not its actual or original cost, was to be the basis of appraisal for rate-making. Not even the qualification suggested in Willcox *v.* Consolidated Gas Company was repeated, whereby an excessive increment of land values was to constitute an exception to the general rule.[3] But there was express disapproval of the use of "multipliers" as used for real-estate appraisal. It was held that a "public utility factor," assigning a special worth to a right of way as used for transportation, resulted in giving the carrier more than its share of the increment of land values—thus being against public policy.[4] Whether the Supreme Court made this concession because of insufficient evidence presented by the railways, or because it was believed to be fundamentally sound reasoning, we need not stop to consider. In effect this decision is in line with tendencies in the different states. The New Jersey valuation was peculiarly hampered by an old statute which forbade any special appraisal of land according to use; but the commission indirectly recognized such a special worth by its allowance for intangibles. The practice of the New York commissions is peculiarly instructive, as affording recognition of the rights of both parties, while still in effect limiting the almost inevitable appreciation of assets with the growth of the community. This result is obtained by indirection through the treatment of appreciation as capital, rather than as income. It is required to be entered on the accounts, periodically, as profit. All depreciation is likewise charged against income as a loss. It would seem to have been more logical and direct to have held to original cost, but for some reason this was not done.[1] Another way of conceding the public's interest would be to fix a lower maximum in the rate of return allowed upon land values than upon other forms of property, making the distinction in the rate rather than the principal. Some qualification is certainly necessary, especially for undeveloped possessions. Washington omitted $15,000,000 outright for unused land holdings; and Nebraska ignored one-half of its railway lands, thus held. However accomplished, the rôle of land values in rate-making, if not eliminated, ought certainly to be minimized. Neither the ups nor downs of real estate have any connection with the conduct of the transportation business. An element of uncertainty is introduced, sometimes, as in Wisconsin, for consistency's sake by requiring a reduction of public utility rates because of a decrease in land values. The only fair criterion should be the actual investment or sacrifice on the part of the owners of the enterprise. Emphasis laid upon extraneous and fortuitous factors, as at present, is contrary to the public welfare.

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[1] Senator La Follette of Wisconsin, J. H. Gray, *cit. sup.*

[2] Notable ones are the New York 80-Cent Gas case (Willcox *v.* Consolidated Gas Company, 212 U. S. 19; and the Minnesota Rate Cases). Whitten, Valuation etc., chap. vi; Michigan, Washington, Wisconsin, Nebraska and South Dakota all recognize it administratively through their expert commissions.

[3] The suggested substitution for present land value of the worth of other land equally serviceable for the public also failed of consideration.

[4] The significance of multipliers is well shown in the Nebraska reports which give two complete sets of returns, with or without multipliers respectively. Most states allow anywhere from two to three times the average taxable value of surrounding real estate.

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[1] The following excerpt from Whitten, Valuation, p. 121, describes the practice:

"Thus, land has been taken at its fair value and not at its original cost, and the annual appreciation of land has been treated as a profit. By this method, all property is treated absolutely alike, as Judge Hough suggests. No difference is made, except that as depreciation represents a decrease in assets, it is placed as a *debit* against operation, while appreciation is placed as *credit* because it is an increase in assets. Land has sometimes been treated like other property only to a degree; that is, each class has been appraised at its present worth or value. That has been done in this case. But if property is to be taken at its *depreciated* value where it has depreciated, an entry must regularly be made in estimated operating expenses equal to the average annual depreciation. Conversely, if land, or any other property which genuinely appreciates in value, is to be taken at its *appreciated* value, then an entry must be made in the estimated receipts equal to the average annual appreciation. Unless this is done, it is obvious that the consumer will be burdened with all the estimated decreases in assets but not credited with the increases in assets. If the principle laid down by the courts is to be followed in part, it should be followed in whole."

Cost of reproduction, new,[1] as a basis for rate adjudication, is identical at the outset of the enterprise with actual or original investment. The two standards separate with the lapse of time, extraneous elements such as changes of price level obtruding themselves. The fundamental objection to this standard is best stated in the two most striking applications made of it by the authorities in Minnesota in 1897 and 1911 respectively. The facts of the first case[2] were briefly as follows. The original lines of the Great Northern Railway were sold under foreclosure in 1879 at a price far below the real value. A new company operated the properties until 1890, when they were all leased to the present company upon guarantees of interest and dividends. The supreme court of Minnesota, on appeal proceedings, declined to consider either the purchase price under foreclosure or the effect of subsequent financing; and decided that reasonable rates were to be determined "by ascertaining what, under all the circumstances, is a reasonable income on the cost of reproducing the road at the present time." An official inquiry thereupon established the cost of replacement as well as the rate of return to be allowed. This proceeding took place in the trough of the industrial depression of 1897. Fourteen years later, at almost the crest of a wave of prosperity, the same operation was repeated with a revised standard of reproduction cost, new, based upon values in 1911.[3] It is not exaggerating to assert that the replacement costs, new, for each of these two dates fourteen years apart, differed absolutely by almost one-third. Unfortunately the Supreme Court of the United States in the Minnesota Rate Cases, although expressly disallowing replacement cost for real estate, did not extend its opinion to review the principle as applied to other forms of property. But it repeatedly indulged in the phrases "mere conjecture" and "mere speculation" as applied to the matter in hand. The following is quoted from the opinion of the court:[1]

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[1] *Cf. Quarterly Journal of Economics*, xxvii, 1912, p. 37; *idem*, xxviii, 1913, p. 616; Whitten, Valuation, chap. iv; Proceedings American Society Civil Engineers, September and October, 1913.

[2] Steenerson *v.* Great Northern Railway Company, 72 N. W. 713.

[3] The Minnesota Rate Cases, Shepard *v.* Northern Pacific *cit. sup.*, 184 Fed. 765.

> Moreover, it is manifest that an attempt to estimate what would be the actual cost of acquiring the right of way if the railroad were not there is to indulge in mere speculation. The railroad has long been established; to it have been linked the activities of agriculture, industry, and trade. Communities have long been dependent upon its service, and their growth and development have been conditioned upon the facilities it has provided. The uses of property in the communities which it serves are to a large degree determined by it. The values of property along its line largely depend upon its existence. It is an integral part of the communal life. The assumption of its non-existence, and at the same time that the values that rest upon it remain unchanged, is impossible and cannot be entertained.

A quotation from economic sources fits in well at this point.[2]

> The "reproduction theory" contemplates an imaginary community in which an imaginary corporation makes imaginary estimates of the cost of an imaginary railroad . . . . The actual, efficient sacrifice of the investor, as revealed in accounting and other historical studies, supplemented by engineering advice as to the adaptability and present condition of properties for the purpose intended, will count far more than the estimates of engineers as to what it will cost to buy land that will never be bought again, to duplicate property that will never have to be duplicated, and to build up a business that will never again have to be developed.

After the respectable interment of the unadulterated doctrine of reproduction, new, by the Supreme Court of the United States, the persistent advocacy of this interpretation of "fair value" elsewhere is the only excuse for our further attention to it.[3] It still exercises an undue influence upon men's minds, tending constantly to become the sole or controlling standard. The fundamental economic objections are its instability and utter lack of relation to the real sacrifice made by investors in creating the property. It may not, however, be consigned to the limbo of rejected doctrines without citing an ingenious economic defence.[1] This is to the effect that the essential feature of valuation is the reproduction, not of the property but of the service rendered. All physical units except land having a definite life term, waste and wear year by year up to a certain point, say fifty per cent of the first cost. After this point, if currently maintained, no further depreciation takes place. Such, it is alleged, becomes the status of most physical property after a few years of operation. And yet the plant at this " normal level " may for all practical purposes serve the public just as well as an entirely new one. A corporation, therefore, having taken care of its depreciation up to this point midway between brand-newness and utter decrepitude by the establishment of equivalent reserves, should be allowed reasonable returns upon the sum of these reserves and the existing structural value. In other words, the property is virtually as good as new and is entitled to fair returns upon what it would cost to replace it outright. This interesting argument is defective, if at all, in failing to dovetail into sound accounting practice in the matters of surplus, sinking funds and replacement. It has less significance for railroads than for other public service companies, particularly because the element of real estate, owned in fee and not merely enjoyed in use, dwarfs everything else by reason of its magnitude.

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[1] Reprint in Ripley, Railway Problems, rev. ed., p. 697.

[2] E. W. Bemis, Proceedings National Association Railway Commissioners, 1913.

[3] Whitten, Valuation, chap. xviii, gives decisions of lower courts and commissions.

Present value, the third of our feasible standards, differs from replacement cost, new; first in the deduction of an allowance for the wear and tear of the plant from use, natural decay and deterioration under the action of the elements; and secondly, through such appreciation in value as may arise from trying out of the plant or its adjustment of parts—called by engineers adaptation or solidification.[1] The importance of the second factor is less generally appreciated than of that associated with age and wear. A railroad always passes through an initial period subsequent to actual construction, when numerous imperfections come to light and many readjustments have to be made. Current outlay is consequently heavier than under normal maintenance. Whether such expenditures are properly chargeable to construction or operation is, perhaps, debatable; but, however it may be treated in the accounts, it is obvious that with the passage of time a positive value has been added to the property. Although by no means inconsiderable, these plus factors will probably seldom offset the minus ones due to depreciation. The Supreme Court of the United States in its latest discussion of reasonableness in the Minnesota Rate Cases, distinctly declined to approve of such disposition of the matter, declaring that the precise extent of existing depreciation should be shown and deducted, as otherwise the physical valuation would be "manifestly incomplete."[2] It would take us too far afield to attempt a review of technical matters of this sort. The practice of the state commissions has generally been to make a deduction for depreciation. The other factors have been variously handled. Washington is most liberal. Michigan and Wisconsin deduct for depreciation, but allow nothing for appreciation. And those commissions which make such allowances apply them, of course, in the greatest detail to the different units of property.

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[1] J. E. Allison in reports to the St. Louis Public Service Commission, 1912 and 1913; and *Quarterly Journal of Economics*, xxvii, 1912, p. 27. *Cf.* Floy, Valuation, 1912; and *Railway Age Gazette*, liv, 1913, p. 1535.

Other factors of minor importance demand consideration in the determination of present value. Unit costs should certainly not be too narrowly limited to a particular time, but should be based upon a fair normal average—disregarding, it is assumed, our foregoing plea that the original unit costs are the only fair standards anyhow. Qualification must also be made for piecemeal construction. The gradual creation of an efficient agency of transportation, bit by bit, may be quite a different matter from the theoretical construction of an entire railroad as a single unified job; particularly when, as commonly happens, most new work is confined to periods of prosperity when funds are obtainable, but when also, unfortunately, wages and prices are abnormally high. There are other puzzling details, such as allowance for working capital in its relation to credit. And a large group of values, usually bulked together as development expenses, hangs in the offing. These last more properly require discussion under the head of intangibles and will be so treated. Finally, the fixing of present value raises a number of very important questions, more weighty for railroads than for most other public utilities, connected with the ascertainment of land values. These have already been touched upon. All in all, the determination of the worth of property at the time of its use is feasible enough as a matter of engineering. Whether as a matter of economics it is sound is quite a different question.[1]

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[1] The best treatment of these subjects, with a very complete bibliography, is in Whitten's Valuation, chaps. xv, xvi and xvii.

[2] Reprint in Ripley, Railway Problems, rev. ed., p. 702. *Cf.* also 11 *Columbia Law Review*, p. 532. The Massachusetts Validation Report of 1910 accepted a 100 per cent valuation, appreciation offsetting depreciation.

Twenty years ago *market or commercial value*, conditioned of course by earning power, was generally regarded as an all-important element in fixing fair rates. But although many railroad men and an occasional judge still uphold its validity,[2] it is discountenanced by the best progressive opinion. As Whitten well says:

> Market value has nothing to do with the rate question as thus considered. It is only set up after the rates are in fact determined. To be sure, the theory is that rates are based on a fair return on the market value of the road under reasonable rates. The impossibility of basing reasonable rates on a market value that is itself determined by reasonable rates is apparent. It is a clear case of reasoning in a circle. We have the evident absurdity of requiring the answer to the problem before we can undertake its solution. The advocates of the market-value theory cannot really mean what they say. Market value is not really a part of the process but the final result.

The same argument is made in a recent judicial decision.[3]

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[1] Compare the wholesale condemnation of all reproduction theories in *Economic Review*, iv, supp. 1914, p. 27.

[2] *Cf.* my quotations as early as 1907 in *Political Science Quarterly*, xxii, p. 604.

[3] Brunswick and T. Water District *v.* Maine Water Company, 59 Atl. 537.

> It is one of the most mischievous and yet persistent fallacies, that the value of a property determines the prices which can be charged for the use of it. The precise opposite is the truth—the value of the property is determined by the price that can be charged for the use of it. It is not because an orchard is valuable that it yields apples. On the contrary, it is because it yields apples that it is valuable. To say that the reasonableness of rates depends upon the fair value of the property used and that the fair value of the property used depends upon the rates which may be reasonably charged, seems to be arguing in a circle.

This circle argument is constantly cropping up. It has been wielded for years against physical valuation of any sort. And, as applied by the Washington Railroad Commission in fixing rates, it certainly seems highly illogical if not absurd, except possibly for misplaced or partially obsolete roads.[1] But it is submitted that this need not necessarily be so. All depends upon whether the business is carried on under conditions of monopoly or of competition. In ordinary business, earnings determine valuation; but as railroads are operated nowadays, or at all events should be, under a firmly-established theory of regulated monopoly, the relationship is reversed. It is not earnings which determine value, but valuation which fixes earning power. The difference is in the starting point of the reasoning. This is only another way of saying that a reasonable rate of charge for a railroad is one of the results and not the cause of the fair value of the property employed.[2]

The proper function of market valuation, viewed in another way, is to set off the intangible elements in fair value from the purely physical ones. No one denies that commercial value depends in large measure upon the present or future income-producing capacity of property; and, furthermore, that it is the use made of this property and neither its original cost nor its present cost of reproduction that fixes its present worth. Governmental valuation seeks not to find the total value at all, but to discover what part of it is represented by real property and what part by intangible assets. Merely to make use of the total value, as dependent upon net income, as a basis for regulation would, of course, involve reasoning in a vicious circle. Once we admit evidence as to total market value, Münchausen-like, we are trying to lift ourselves by our boot-straps. But that is not the present proposition in any sense. The aim is to differentiate in the total worth between two distinct sources of value: one, the actual investment in physical plant to be credited to stockholders; the other, the intangible value, some part of which belongs by right to the public while other parts remain essentially the reward of private initiative. So long as these franchise gifts were of doubtful value, the people were willing to permit all profit upon them, if there were such, to accrue to the private owners of the shares; but as soon as that stage of development was passed, the public insisted upon its right to some part of the advantage. In brief, the demand for valuation registers a protest on behalf of the public against paying returns indiscriminately to private stockholders upon values, a part of which the public itself may have created and granted to the corporations. It is the emergence of such values due to the growth of the country, over and above the capital investment values, which accounts for the extraordinary interest and activity of the legislatures, courts and commissions in this work all over the country.[1]

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[1] Second and Third Annual Reports, 1907–08; Proceedings National Association Railway Commissioners, 1911, p. 148.

[2] Admirably reasoned by Justice Swayze in the Paterson, N. J., Gas Company case, 87 Atl. 659.

Recognition of an intangible value as property, over and above the mere physical plant—characterized by William H. Taft in accepting the nomination for the presidency as "full value"—has been accorded by the practice of several states. The exact nature of this surplus value we shall have occasion to consider elsewhere, merely noting once more that it is based upon earning power or income. In other words, after the payment of a normal return on a fair value of the actual property, the excess earnings are capitalized in order to set an additional value upon the concern. A concrete example may serve to make this clear. Let us suppose that a railroad possessing physical property worth $10,000,000 is earning at the rate of $1,200,000 net a year. Five per cent on the $10,000,000 of actual property, or $500,000, therefore represents the interest return on capital. But there still remains $700,000 of the annual income to be distributed. This would pay seven per cent upon $10,000,000 more of capitalization—a rate of return none too high, perhaps, considering its contingent and fluctuating character. The surplus earning power over and above the normal return on the actual property, thus capitalized at $10,000,000, is the value of the " non-physical " property. It is this excess which is termed intangible value or, as it is defined in New Jersey, " the value of the remaining property." Michigan in 1900 under the leadership of Professor Henry C. Adams, was a pioneer in this field.[1] Estimated in general upon the above plan, the intangible value of the railroads in that state in 1900 amounted to $35,800,000 or 19 per cent of a total worth, comprising both physical plant and intangibles, of $203,000,000 for the railroad net as a whole. Washington in 1905 gave special attention to everything affecting both density of traffic, that is to say earnings on one side and operating expenses on the other, as distinct from the bare bones of the plant.[2] The result according to our table on page 577 indicates an intangible value on the whole about offsetting depreciation; so that the market value of the properties, which was sought, approximately equaled their reproduction cost, new. As for the individual roads, the intangible value varied greatly, from an excess above reproduction cost of twenty per cent for the Oregon Railway and Navigation Company, to one per cent for the Northern Pacific. For smaller roads dependent for future business upon partly depleted forests, the market value over and above physical property was necessarily nil. New Jersey found the value of the " remaining property " of its carriers in 1909–11 to be about $76,000,000, that is to say, about twenty per cent of the present physical worth. Here again, as in Washington, capitalized earning power varied greatly as between different roads, from eleven per cent on the Erie to thirty-one per cent on the Reading. And here again, also, one notes an agreement with both Michigan and Washington, in a practical equivalence between depreciation and intangible value, the one just about offsetting the other. The foregoing figures indicate intangible values reflecting earning power, that is to say market value, which seem to fluctuate up and down about one-fifth of the worth of the physical plant. Whether this excess value be termed good will, the worth of a going concern, or franchise value—points shortly to be considered—will make no difference in the statistical result, however much it may affect the inclusion of all or a part of this value in the rate-making basis.

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[1] Further discussion of this side of the case by the author in *Political Science Quarterly*, xxii, 1907, p. 606 ff., is essential to a complete understanding of the subject. It is omitted in order to avoid repetition.

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[1] See his testimony before the United States Industrial Commission, 1900, ix, p. 373; United States Census Bulletin, no. 21 on Commercial Valuation, 1904, p. 79. The Cleveland street railway settlement by arbitration in 1909 was somewhat similar.

[2] *Journal of Political Economy*, xxi, 1913, p. 332.

The subject of intangible values may not be dismissed without further examination, for just now it is the most rapidly growing tip-end of the subject. Courts and commissions seem to be if not all at sea at least well out at sea, or, to change the figure, almost at loggerheads. Few of them have clearly dissected the value of "the remaining property", or "full value", from the point of view of the conflict of private and public rights.[1] Three intangible possessions, quite distinct in their nature although blending at the margins, are discernible. These are franchise value, good will, and the worth of a going concern. The franchise has value either because of the possession by the company of a privilege of place, of time, or of use. Thus a railroad may enjoy a strategic location and conceivably, as we may hope in future, will be protected in the possession thereof as against all comers, although perhaps not to the extent of leaving Pittsburg always at the mercy of the Pennsylvania Railroad or New England in the palm of the New Haven's hand. But within reasonable limits, sound public policy approves of regulated and at the same time protected monopoly. Or, again, a carrier may for a period of time have conferred upon it certain privileges which add to its earning power.[2] Wherever such privileges are conferred or perpetuated by public authority, it is obvious that no claim can rightfully be set up as against the public for the enjoyment of more than fair profits. It is now well settled law that in return for a franchise which largely guarantees the integrity of an investment, the company may equitably be limited in the rate of return to be had. An interesting question at this point relates to the status of such privileges of location as arise from perpetual trackage rights. The Massachusetts Validation Report, for example, allowed $6,000,000 to the New Haven for its perpetual right to the use of the New York Central terminals.

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[1] Loosely used even by J. H. Gray, *Economic Review*, iv, supp., 1914, p. 32.

[2] *Cf.* cases cited in Ripley, Railway Problems, rev. ed., p. 740.

The second intangible element is good will, not inaptly defined as the "present value of expected super-profits."[1] Reputation in trade is a characteristic asset of competitive business and as such has only a remote connection with railroads under present conditions. With but a single carrier in the field, the shipper has no choice and no good will either to give or to withhold. Consequently, it is argued that no allowance therefor should be permitted in valuation.[2] And yet, we submit, a large part of the business of a carrier is after all really competitive. Reputation for certainty and despatch of freight and safety in passenger business may cut a not inconsiderable figure in receipts. As for the third intangible, going value, this arises from an established business as against one in its initial stages. Unquestionably a system in full operation, with established connections, an efficient organization and a created income, with its property tried out and unified, is worth more than a railroad practically on paper, except for the fact that its physical plant is geographically in place. Here, certainly, is ground for an allowance whether for capitalization or rate-making. Nevertheless the practice of administrative commissions varies greatly.[3] The prime difference between a live railroad and a dead one, financially, is the amount of the losses and deficits in the early years of operation. Wisconsin practice permits such losses and deficits to be treated as capital; New York, followed by Maryland, makes allowance for them in a generous rate of return when once fully established. New Jersey, unqualifiedly accepting the view that a property with a business attached has a greater value than one without it, would seem to authorize the capitalization not only of deficits below a fair return, but even of expenses incurred in holding patronage. The subject may be dismissed with the following quotation:[1]

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[1] *The Accountant*, December 6 and 27, 1913; and January 27, 1914.

[2] *Cf.* especially, 4 Wisconsin R. C. R., 1 and 60.

[3] *Quarterly Journal of Economics*, xxviii, 1914, p. 284; also Whitten, Valuation, chap. xxv.

> Then again, although it is argued that the court excluded going value, the court expressly took into account the fact that the plant was in successful operation. What it excluded was the good will or advantage incident to the possession of a monopoly, so far as that might be supposed to give the plaintiff the power to charge more than a reasonable price. An adjustment of this sort under a power to regulate rates has to steer between Scylla and Charybdis. On the one side if the franchise is taken to mean that the most profitable return that could be got, free from competition, is protected by the Fourteenth Amendment, then the power to regulate is null. On the other hand if the power to regulate withdraws the protection of the amendment altogether, then the property is nought. This is not a matter of economic theory, but of fair interpretation of a bargain. Neither extreme can have been meant. A midway between them must be hit.

All in all, the advance in economic reasoning during the period under review has been notable in many ways. The main lines of procedure have in all probability become established, with one exception—and that a rather important one. Whether the courts and commissions have chosen wisely in the adoption of replacement cost as a standard of valuation seems open to debate. The errors and shortcomings of policy due thereto have been either corrected or avoided by indirection thus far. A searching examination may yet reveal possibilities in the substitution of actual or original sacrifice—except possibly for land—for reproduction cost, which will profoundly affect the treatment of the whole subject.

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[1] 223 U. S. 655.